

AMG-19 DDM Tech Exchange

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AMG - 19
DDM Technical Exchange

Agenda

Data Distribution Management

1:00	DDM activities status	Morse
1:15	Data Distribution Model Template	Morse
2:00	FDDM development exercise	Kemkes, STOW team

Wrap Up

4:00	Action item review	Morse
4:10	Plans for next meeting	Morse

DDM Activities Status

- Results of DM/DDM study addressed in I/F Spec 1.2 update
- Final report on study will be available on DMSO web page and will be the basis for Fall SIW paper
- DDM Design Document will be updated to reflect those changes
- Use cases (Perceptronics) will use the new interfaces and Use Case Study will record the results
- Data Distribution Model Template (DDMT) v0.3 or update to OMT

Recording Global DDM Data in the FDDM

- **Routing spaces**
 - **Names**
 - **Attributes/interactions**
 - **Dimensions**
 - » **Dimension name**
 - » **Range or enumerated set**
 - » **Units**
 - » **Normalization function**
 - One of a named set of functions, e.g. linear or enumerated mapping or Actual function**

Questions on Recording Global Data

- Does the separation of DM and DDM remove the requirement to record routing of attributes through spaces?
 - No; see I/F Spec 1.2 update
- Does the data need to be different for interactions?
 - Not appreciably; specify whole interactions rather than attributes of objects to be routed

Routing Space Table Format

Routing Space Table							
<routing space>	<object class>	<attribute, attribute,...>	<dimension>	<type>	<range/set>	<units>	<normalization function>
	<object class>	<attribute, attribute,...>					
	<interaction class>						
			<dimension>	<type>	< range/set>	<units>	< normalization function >
		
<routing space>	<object class>	<attribute, attribute,...>	<dimension>	<type>	< range/set>	<units>	< normalization function >
...

Routing Space Table Example

Routing Space Table							
Location	vehicle	type, velocity	x	float	[0-200]	km	linear(domain)
			y	float	[0-150]	km	linear(domain)
			z	float	[0-5]	km	linear(domain)
Force	vehicle	munitions	affiliation	enumeration	blue, red	N/A	linear_enumerated (domain)
Transmission	radio_ transmission		frequency	float	[225-400]	MHz	radio frequency

Common Normalization Functions

Linear

Form

Parameters

Function

`linear(domain)`

domain: a non-enumerated value known to a federate using the routing space
$$[(\text{domain} - \text{dimension_min}) / (\text{dimension_max} - \text{dimension_min})] * (\text{RTI_max} - \text{RTI_min}) + \text{RTI_min}$$

Linear Enumerated

Form

Parameters

Function

`linear_enumerated(domain)`

domain: an enumerated value known to a federate using the routing space
$$[\text{position_in_enumerated_set}(\text{domain}) / (\text{enumerated_set_length} - 1)] * (\text{RTI_max} - \text{RTI_min}) / + \text{RTI_min}$$

Enumerated Set

Form

Parameters

Function

`enumerated_set(domain, mapped_set)`

domain: an enumerated value known to a federate using the routing space
mapped_set: a list of values in the range [RTI_min, RTI_max] onto

which there is a one-to-one mapping from the enumerated set

`mapped_set[position_in_enumerated_set(domain)]`

TM/DDM Tech Exchange Results

- New topics discussed
- Candidate topics for next DDM meeting (12 August)
 - NSS filtering architecture
 - Filtering using autonomous objects
 - FDDM development experiments

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Action Items from TM/DDM Tech Exchange

<u>Number</u>	<u>Assignee</u>	<u>Date Due</u>	<u>Action Item</u>
16-3	Steinman/Metron	June AMG mtg.	Perform zero-lookahead experiments
16-4	Fujimoto	June AMG mtg.	Make recommendation on zero lookahead for August I/F spec checkpoint <i>Done</i>
18-1	Kemkes, Petty, Morse	4/14/97	Post DM/DDM issue updates to DDM reflector <i>Done</i>
18-2	Morse	5/2/97	Post initial report on recording global DDM data to DDM reflector <i>Done</i>